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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,525	10/19/2001	Eric K. Larson	04513-023001	7279

26161 7590 04/29/2003

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EXAMINER

FRANK, RODNEY T

ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 04/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No .	Applicant(s)
	10/042,525	LARSON ET AL
Examiner	Art Unit	
Rodney T. Frank	2856	

DETAILED ACTION*Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staerzl (U.S. Patent Number 5,804,712). Staerzl discloses an oil flow sensor and circuit to indicate the presence of oil flow in a multi-cylinder internal combustion engine. The oil sensor includes a heating element positioned within the oil line directly in the oil flow path. Positioned upstream and downstream from the heating element are an upstream heat sensor and a downstream heat sensor. Each of the heat sensors is a negative temperature coefficient resistive device, such that the resistance of the heat sensor varies depending upon oil temperature at the sensor. The output of both the upstream and downstream sensor is coupled to a comparator. The comparator compares the value of the signals from the heat sensors and triggers a switching circuit when the temperature at the sensors approach one another, thus detecting that there is not adequate oil flow to the engine. The switching circuit is connected to a signaling device that indicates whether oil flow to the engine is adequate (see the abstract).

In reference to claim 12, figure 1 of Staerzl discloses a coupling (21) having two open ends adapted for connection to upstream and downstream tubes of a pulsating oil circulation system of an engine and a channel configured to direct oil to flow past a temperature sensor (18 and 20) connected to a sensing circuit, the sensing circuit comprising elements connected to determine a

change in a voltage across the temperature sensor at to compare the change to a threshold, and to generate a flow-state signal based upon this comparison. Details on the operation of the device can be found in column 3 lines 12-36.

In reference to claim 16, ports to carry flow-state signals and timing signals are provided.

3. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staerzl as applied to claims 12 and 16 above, and further in view of Mitra et al. (U.S. Patent Number 5,422,807; hereinafter referred to as Mitra). Mitra discloses a semiconductor microcontroller includes the capability to perform analog to digital conversions of an analog signal representative of a variable parameter indicative of the need to exercise a control function. While the analog to digital conversions are being performed, the microcontroller processor can be powered down to eliminate noise arising from switching activities of the processor as a source of inaccuracy in the conversion process. At the end of the conversion, the analog to digital converter can either shut itself down or wake up the processor. The powering down is achieved by simply disabling the clock input to the microcontroller so that the processor is still activated but incapable of undergoing switching functions (see the abstract). The motivation to combine the Mitra reference with the teachings of the Staerzl is to have a detail for the operation of a microcontroller to control the oil flow sensor disclosed in Staerzl.

In regard to claim 13, Mitra discloses a microcontroller that can be used in automotive applications, such as an engine control module (see column 1 lines 51-64) which utilizes a sample and hold circuit to store a referenced voltage value (see column 2 lines 40-42).

In regard to claim 15, a microcontroller with an analog-to-digital conversion is disclosed as the principal aspect of the Mitra invention.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Staerzl as applied to claims 12 and 16 above, and further in view of Iida (U.S. Patent Number 4,483,295). Iida discloses a control device for a multicylinder engine comprising a knocking detector for detecting the occurrence of knocking, a crank angle sensor for generating a signal indicative of the crank angle, an engine operating condition control device for governing the engine operating condition, and a control circuit for identifying one of the engine cylinders in which knocking has actually occurred, in dependence on both outputs from the detector and the crank angle sensor. The control circuit operates to cause the engine operating condition control device to control the at least one of the engine cylinders when the output from the detector is lower than a predetermined value, but to control all of the engine cylinders when it is higher than the predetermined value (see abstract). The motivation to combine the Iida reference with the teachings of the Staerzl is to have a detail for the operation of a control device to control the oil flow sensor disclosed in Staerzl.

In regard to claim 14, Iida discloses the use of delay circuit in order to provide a synchronization of time for a signal provided to the control circuit (see column 7 lines 47-53).

Response to Arguments

5. Applicant's arguments with respect to claims 12-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney T. Frank whose telephone number is (703) 306-5717. The examiner can normally be reached on M-F 9am -5:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.

RTF
April 25, 2003


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800